

1 WHAT IS CLAIMED IS:

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3 1. In an apparatus for sealing the space between a floating roof and a
4 tank wall in a liquid storage tank which includes means for mounting a
5 shoe on the floating roof in the storage tank and maintaining the shoe
6 in contact with an inner wall of the tank, the improvement which
7 comprises an electrically conductive bonding strap connected at one
8 end to a lower portion of the shoe assembly below liquid level and
9 connected at a second end to the floating roof below liquid level, the
10 bonding strap being of a length to minimize its self inductance, so as to
11 provide a preferred path for dissipating electrical current through an
12 oxygen deficient environment.

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14 2. The apparatus of claim 1, wherein the bonding strap is made of a
15 material selected from the group consisting of stainless steel, copper,
16 tinned-copper, bronze and mixtures thereof.

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18 3. The apparatus of claim 1, wherein the liquid storage tank is an external
19 floating roof tank.

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21 4. The apparatus of claim 1, wherein the bonding strap is no longer than
22 required to bridge the distance between the floating roof and the shoe
23 assembly at locations the bonding strap is connected there between,
24 allowing for seal tolerances.

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26 5. The apparatus of claim 1, wherein the bonding strap is made of a
27 corrosion resistant material.

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29 6. The apparatus of claim 1, wherein the bonding strap is entirely below
30 liquid level.

1 7. A method of protecting a floating roof tank from the effects of a
2 lightning strike comprising the steps of placing an electrically
3 conductive bonding strap at one end into electrical contact with an
4 inner wall of the tank below liquid level in the tank and connecting a
5 second end of the bonding strap to the floating roof below liquid level,
6 the bonding strap being of a length to minimize its self inductance, so
7 as to provide a preferred electrically efficient path for conducting
8 electrical current through an oxygen deficient environment.

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10 8. The method of claim 7, wherein the bonding strap is made of a material
11 selected from the group consisting of stainless steel, copper,
12 tinned-copper, bronze and mixtures thereof.

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14 9. The method of claim 7, wherein the electrical contact with an inner wall
15 of the tank is made through a sliding shoe seal assembly.

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17 10. The method of claim 7, wherein the bonding strap is no longer than the
18 allowed seal tolerances between the floating roof and the shoe
19 assembly at locations the bonding strap is connected there between.

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21 11. The method of claim 7, wherein the bonding strap is made of a
22 corrosion resistant material.

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24 12. The method of claim 7, wherein the bonding strap is entirely below
25 liquid level.

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27 13. In an apparatus for sealing the space between a floating roof and an
28 inner tank wall in a liquid storage tank, the improvement which
29 comprises an electrically conductive bonding strap in electrical
30 communication with the inner tank wall and the floating roof located
31 below liquid level, the bonding strap being of a length to minimize its

1 self inductance, so as to provide a preferred path for dissipating
2 electrical current through an oxygen deficient environment.
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4 14. In a liquid storage tank having an inner tank wall and a floating roof, the
5 improvement which comprises means for establishing electrical
6 communication between the inner tank wall and the floating roof, said
7 means being located below the liquid level and being configured to
8 have minimum self inductance, so as to provide a preferred path for
9 dissipating electrical current through an oxygen deficient environment
10 in the storage tank.
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12 15. A method of protecting a floating roof tank from the effects of a
13 lightning strike comprising the steps of providing an electrically
14 conductive bonding strap in electrical communication with an inner tank
15 wall and the floating roof whereby the bonding strap is located below
16 liquid level, the bonding strap being of a length to minimize its self
17 inductance, so as to provide a preferred electrically efficient path for
18 conduction of lightning stroke current through an oxygen deficient
19 environment.